National Institute of Environmental Health Sciences

Potential environmental benefits from increased use of bioenergy in China

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Abstract:

Because of its large population and rapidly growing economy, China is confronting a serious energy shortage and daunting environmental problems. An increased use of fuels derived from biomass could relieve some demand for nonrenewable sources of energy while providing environmental benefits in terms of cleaner air and reduced emissions of greenhouse gases. In 2003, China generated about 25.9 x 10(8) metric tons of industrial waste (liquid + solid), 14.7 x 10(8) metric tons/year (t/y) of manure (livestock + human), 7.1 x 10(8) t/y of crop residues and food-processing byproducts, 2 x 10(8) t/y of fuelwood and wood manufacturing residues, and 1.5 x 10(8) t/y of municipal waste. Biofuels derived from these materials could potentially displace the use of about 4.12 x 10(8) t/y of coal and 3.75 x 10(6) t/y of petroleum. An increased bioenergy use of this magnitude would help to reduce the emissions of key air pollutants: SO(2)by 11.6 x 10(6) t/y, NO(X) by 1.48 x 10(6) t/y, CO2 by 1.07 x 10(9) t/y, and CH4 by 50 x 10(6) t/y. The reduced SO(2) emissions would be equivalent to 54% of the national emissions in 2003, whereas those for CO2 are 30%. It is important to recognize, however, that large increases in the use of biomass fuels also could result in socioeconomic and environmental problems such as less production of food and damage caused to natural habitats.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Human Conflict/Displacement

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Co-Benefit/Co–Harm (Adaption/Mitigation): ☑

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact: ☑

specification of health effect or disease related to climate change exposure

General Health Impact

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Mitigation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content